

OPTICAL ANALOG TO DIGITAL CONVERTER

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Abstract

PURPOSE:To easily realize an optical analog to digital converter with superior speediness by performing analog to digital conversion by using an acoustooptic means.

CONSTITUTION:An acoustooptic element 13-1 diffracts input light by its acoustooptic effect and outputs the diffracted light. The intensity of the diffracted light in this case relates to the level of a modulated signal applied to the acoustooptic element. For the purpose, an analog signal modulating means 20 modulates an analog signal by using a carrier consisting of a sine wave signal having, for example, an amplitude $2 \cdot V_1$ ($k=1-n$ and V_1 is a reference amplitude voltage) and applies the modulated signal to the acoustooptic element, so that (n) diffraction output light beams corresponding to the analog signal are obtained. Those (n) diffraction output light beams are converged by an output light lens 19 and the intensity is detected by, for example, a photodiode 14 and converted by a comparing circuit 15 into a digital signal consisting of '1' and '0'.

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